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ABSTRACT

The purposes of this study were to replicate and extend the list learning results in a prose context, and to explore both the learning of incidental material and the effect of a text organization pretest and posttest information about passage structure. One hundred twenty-eight college undergraduates read a 460 word prose story, which mentioned the proper names of 16 types of creatures and underlined a specific class of items (e.g., large sea creatures) or a general class (e.g., living creatures). Overtly responding to the smaller number of items (but presumable evaluating text items against a more distinctive categorical criterion) increased recall without increasing reading time. Specific search produced higher recall if subjects were informed about the text structure before reading, but not if the information was given after reading. (WR)

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Incidental Learning of Categorical Text Items Induced by Specific and General Search Directions

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A 460 word prose story mentioned the proper names of 16 types of creatures. One hundred twenty eight college undergraduates read the text and underlined a specific class of items (e.g., large sea creatures) or a general class (e.g., living creatures). Overtly responding to the smaller number of items (but presumably evaluating text items against a more distinctive categorical criterion) increased recall without increasing reading time. Specific search produced especially high recall if Ss were informed about the text structure before reading, but not if the information was given after reading. The results have some implications for the use of learning objectives.

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Objectives

Kammann and Frase (Psychonomics, 1971)[1] have reported studies showing that if Ss search a list of words for specific items, recall for all items in the list is increased relative to a more general search, in spite of the fact that Ss respond overtly a fewer items with the specific search directions. These results are intriguing partly because they relate to the use of different types of learning objectives with text. For instance, Rothkopf and Kaplan (AERA, 1972) have reported a related study in which specific learning objectives produced higher text recall than general objectives. The present study attempted to replicate and extend the list learning results in a prose context.

In addition, it has been found (Frase, 1969; Frase & Silbiger, 1970) that when Ss search for information in a text they remember incidental information which is necessary to attain the required information. The present study also explored the learning of such incidental material, as well as the effect of text organization and pre- and postinformation about passage structure.

Method

Subjects. -- 128 undergraduate psychology students from California State University, Chico.

Materials. -- The 460 word passage consisted of a story describing how 16 animals were given proper names. The animals were large and small, dangerous and harmless, land and sea creatures (e.g., lion, mouse, shark, herring). The story told how the animals were renamed by a king. Their proper names were common words (e.g., the lion's name was Jelly). This information

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[1] References are omitted for brevity.

was presented in a very prosaic manner with a great deal of variability in syntax.

Design. -- This design was a 2X2X2X2X2X2X2 ANOVA. The seven factors were: (1) Different search directions were imposed by asking Ss to read the entire passage but to underline, e.g., all the living creatures (general search) or small land creatures (specific search). (2) Ss were told to underline animal types (e.g., lion, gorilla) or names (e.g., Jelly, Office). (3) The category members were presented consecutively in the text (organized) or random (unorganized). (4) Ss were told the categorical composition of the list before reading (preinformation) or they were not told (no preinformation). (5) Ss were told the categorical composition of the list before an immediate free recall posttest (postinformation) or they were not told (no postinformation). (6) Ss were given a free recall test immediately after completing the task (immediate) and 7 days later (delayed). (7) The number of types and proper names correctly recalled were assessed. Factors 6 and 7 were within Ss variables. Name and type recall were also analyzed separately. The study had other conditions which will not be discussed for reasons of brevity.

Procedure. -- Ss first read instructions conveying the preinformation and search directions. Text reading began on signal and the completion time was recorded from a digital display. Subjects then went on to the postinformation condition and immediate free recall test on names and types. After seven days they returned for another free recall test.

Results

Time. -- There were no differences in time to complete the reading task.

Recall. -- Specific search resulted in greater recall (29%) of all items than general search (24%)--F=15.49, df=1/96, $p < .01$. Closely paralleling results with word lists, the specific search groups recalled 50% of the types, general search groups recalled 33%. Recall was lower after seven days (21%) than immediately after reading (32%)--F=162.3. Recall for types (41%) was higher than for names (11%) -- F = 1139.19. It was

predicted that the search for proper names (e.g., the names of the large land animals) implied, as a consequence, the mediation of the type items. The only condition which should lead to poor recall of types would be a condition in which types might be irrelevant to the solution of the task; in this study this condition would be the general search for proper names. Results confirm this hypothesis. Type recall for the general name search averaged 24%--all other groups were above 42% on types. For recall of names, the differences among groups were slight (interaction $F=34.82$). The interaction between type/name search and type/name recall ($F=97.45$) indicated substantial relevant learning, i.e., Ss learned more items that were targets of their search.

Pre- and postinformation and organization were not by themselves significant, however, they exhibited sensible interactions with other variables. For instance, the specific search averaged 32% correct if preinformation was available, and 26% if it was not available, whereas general search averaged 24% correct regardless of whether preinformation was given or not (interaction $F=5.84$, $df=1/96$, $p < .025$). Thus, categorical information made useful inputs to learning provided that Ss were required to respond actively to the categorical distinctions in the text. Other interactions such as this indicate that positive learning outcomes can be expected for categorical items as more structural information becomes available.

Conclusions

The results confirm that recall for conceptual information is improved if Ss evaluate text items using precise categorical distinctions. Incidental learning is a function of the way in which the incidental items must be processed and the structural information available to Ss before reading.